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## A New Frog of the Genus *Hyla* from Northern Territory, Australia

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Among the amphibians and reptiles assembled under the auspices of the American Museum of Natural History by the Spalding-Peterson Expedition of 1959 in North Queensland and the Spalding-Hosmer Expedition of 1960 in northwestern Queensland, Northern Territory, and the Lower Kimberley Division of Western Australia, there are several frogs that represent an undescribed species of *Hyla*. The specimens most closely resemble frogs of the *Hyla lesueuri* group, as defined by Moore (1961), but they are sufficiently distinct to warrant recognition as an additional species. This description has been prepared as a preliminary report, pending completion of a comprehensive account of all the amphibians and reptiles that the two expeditions obtained.

The abbreviations employed in the text represent measurements (in millimeters) obtained in the following ways: S-V represents the snout-to-vent length, or the distance between the tip of the snout and the vent when the body is straight; TL is the tibia length, measured from the fold of skin at the knee to the tibiotarsal joint while the limb is bent; HW is the head width, measured at the posterior edge of the eyes; HL is the length of the head, from the tip of the nose to the posterior edge of the tympanum; ED is the diameter of the eye; TD is the diameter of the tympanum as measured horizontally, with the tympanic ring included; EN is the dis-

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tance between the anterior border of the eye to the middle of the naris; IN is the distance between the centers of the paired nares.

The species is named for Mr. Philip Spalding, who supported the investigations of the Australian fauna that made it possible for the two expeditions to obtain the specimens described below. It is a pleasure to

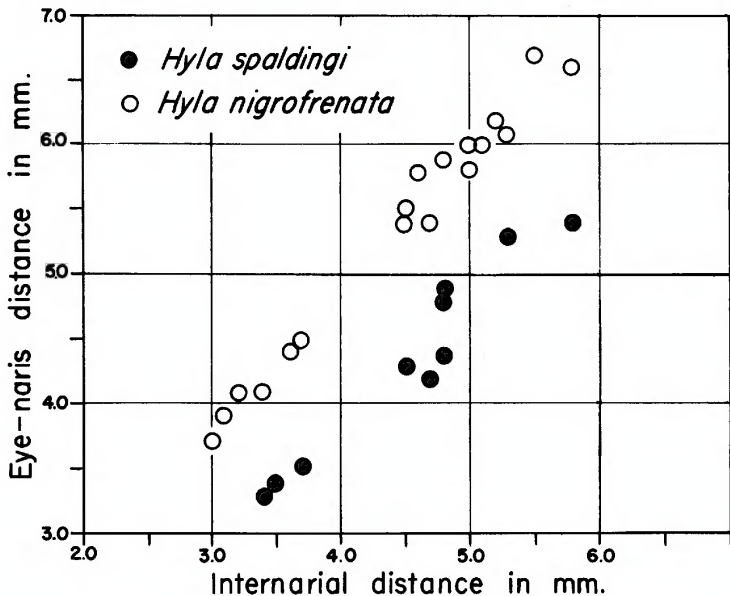


FIG. 1. Relationship of distance from eye to naris to internarial distance in *Hyla spaldingi* and *Hyla nigrofrenata*.

acknowledge Mr. Spalding's invaluable assistance by associating his name with the new species.

### ***Hyla spaldingi*, new species**

**HOLOTYPE:** An adult female, No. 67835, in the collection of the American Museum of Natural History, obtained at Elizabeth River, 50 miles south of Darwin, Northern Territory, on September 23, 1960, by William Hosmer. This specimen will go to the Western Australian Museum, Perth.

**PARATYPES:** A.M.N.H. Nos. 67836 and 67837, taken at the type locality on the same date; A.M.N.H. No. 67838, Katherine, September 25, 1960; A.M.N.H. Nos. 65423-65428, Red-Bank Mine, near Wollongorang, Northern Territory, June 27, 1959.

DIAGNOSIS: *Hyla spaldingi* belongs to the group designated by Moore (1961, p. 309) as the "*Hyla lesueuri* complex," in which it is perhaps most nearly related to *H. nigrofrenata* Günther. Ten examples of *spaldingi* have been compared with 18 examples of *nigrofrenata*. The species differ notably in the shape of the snout (fig. 1) and in the relative proportions of the

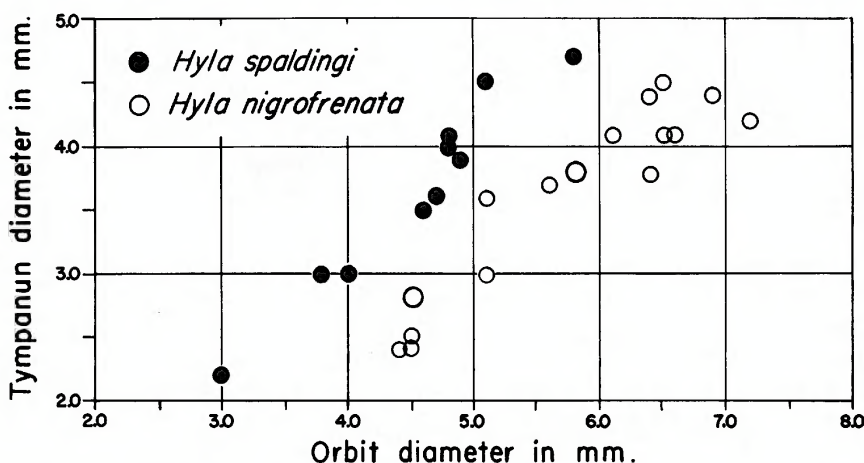


FIG. 2. Relationship of diameter of orbit to diameter of tympanum in *Hyla spaldingi* and *Hyla nigrofrenata*. The two larger circles each indicate two specimens of *nigrofrenata* with identical dimensions.

tympanum and the eye (fig. 2). The ratio EN/IN of *spaldingi* averages 0.96 (0.89–1.02); that of *nigrofrenata*, 1.21 (1.14–1.28). The ratio of TD/ED in *spaldingi* averages 0.79 (0.73–0.88); that of *nigrofrenata*, 0.62 (0.53–0.71).

DESCRIPTION OF HOLOTYPE: The specimen has the following measurements and proportions: S-V, 50.7; TL, 30.2; HW, 16.9; EN, 5.3; IN, 5.3; ED, 5.1; TD, 4.5; EN/IN, 1.00; TD/ED, 0.88; TD/EN, 0.65; and TL/S-V, 0.59.

The snout is narrow and tapered, with a strong canthus rostralis and an oblique loreal region. The tympanum is distinct, with a well-defined tympanic ring. The supratympanic fold extends beyond the forelimb. The skin of the dorsal and ventral surfaces is smooth. There is no webbing between the fingers, the relative lengths of which are  $3 > 4 > 1 > 2$ . The webbing of the toes extends to the discs of all digits (fig. 3). The discs of both fingers and toes are small, scarcely wider than the penultimate phalanges. A small inner, and a minute outer, metatarsal tubercle are present.

The dorsal surface is pale brown. A dark brown stripe extends from the eye along the canthal ridge to the tip of the snout; a broad dark brown stripe extends from the posterior edge of the eye, through the tympanum, to the flank. The edge of the lower jaw is mottled with brown and white. The posterior surface of the thigh is mottled with blackish brown on a pale ground. The ventral surface is white.

**VARIATION IN PARATYPE SERIES:** The paratypes agree closely with the type. Males are smaller than females: two adult males, A.M.N.H. Nos. 67837 and 67838, are, respectively, 38.9 and 44.2 mm. from snout to vent, whereas two adult females, A.M.N.H. Nos. 67835 and 67836, measure 50.7 and 53.7 mm. The smallest individual, A.M.N.H. No. 65423, has a snout-to-vent length of 27.9 mm.

**HABITAT:** The type and paratypes were found in grass beside streams.

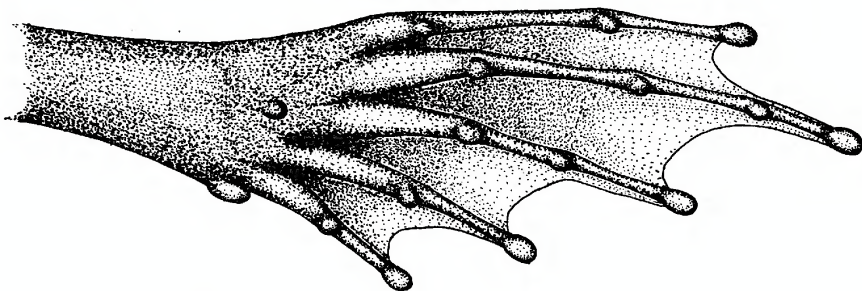


FIG. 3. Plantar surface of foot of *Hyla spaldingi*.

**COMPARISONS WITH RELATED SPECIES:** The characters that distinguish *Hyla spaldingi* from *H. nigrofrenata* are noted in the diagnosis. *Hyla spaldingi* has also been compared with 38 examples of *H. lesueuri* Duméril and Bibron. The disc and one or two phalanges of the fourth toe, and the disc and at least part of the phalanx of the fifth toe, are free of webbing in *lesueuri*, whereas the webbing reaches the discs of all toes in *spaldingi*. The temporal stripe is half of the width of the tympanum in *lesueuri*, but virtually as wide as the tympanum in *spaldingi*. The ratio HW/HL is 1.00 (0.94–1.06) in *lesueuri*, but the head of *spaldingi* is proportionately narrower, and the mean for the ratio is 0.85 (0.79–0.89).

An examination of 76 examples of *Hyla latopalmata* (Günther) reveals that this species is smaller. Moreover, it differs from *spaldingi* in having less extensive webbing, for the disc and slightly less than two phalanges of the fourth toe, and the disc and half of the distal phalanx of the fifth toe, are free. In contrast, the toes of *spaldingi* are webbed to the discs. The larg-

est female of *H. latopalmata* that Moore (1961, p. 299) examined had a body length of 42.5 mm., whereas *spaldingi* attains a length of 53.7 mm. *Hyla spaldingi* and *H. latopalmata* both occur at Katherine, Northern Territory.

Other species of the *lesueuri* complex evidently are less closely related to *spaldingi*. *Hyla nasuta* (Gray) has a proportionately longer snout, for the mean of the ratio ED/IN for 16 specimens is 1.12 (1.00–1.19), whereas in *spaldingi* the mean is 0.96 (0.89–1.02). The dorsal pattern of *nasuta* consists of dark and light longitudinal stripes, but the dorsum of *spaldingi* is



FIG. 4. *Hyla spaldingi*, Elizabeth River, Northern Territory, Australia.

uniformly brown. *Hyla freycineti* (Tschudi) of southern Queensland and New South Wales and *H. booroolongensis* Moore of New South Wales are distantly related to *spaldingi*, from which they are widely separated geographically.

Moore (1961, pp. 297–298) discussed frogs reported from the Northern Territory under the name of *H. lesueuri*. Those from Yam Creek (100 miles inland from Darwin) and Groote Eylandt, Northern Territory, reported by Copland (1957, p. 92) as *lesueuri* appear to Moore to be “closer to *Hyla latopalmata*,” and he concluded that “they are not *Hyla lesueuri*, but I am not sure that they are *Hyla latopalmata*.” These frogs may prove to be *Hyla spaldingi*. Mitchell (1955) identified a frog in the collection of the United States National Museum, No. 128719, from



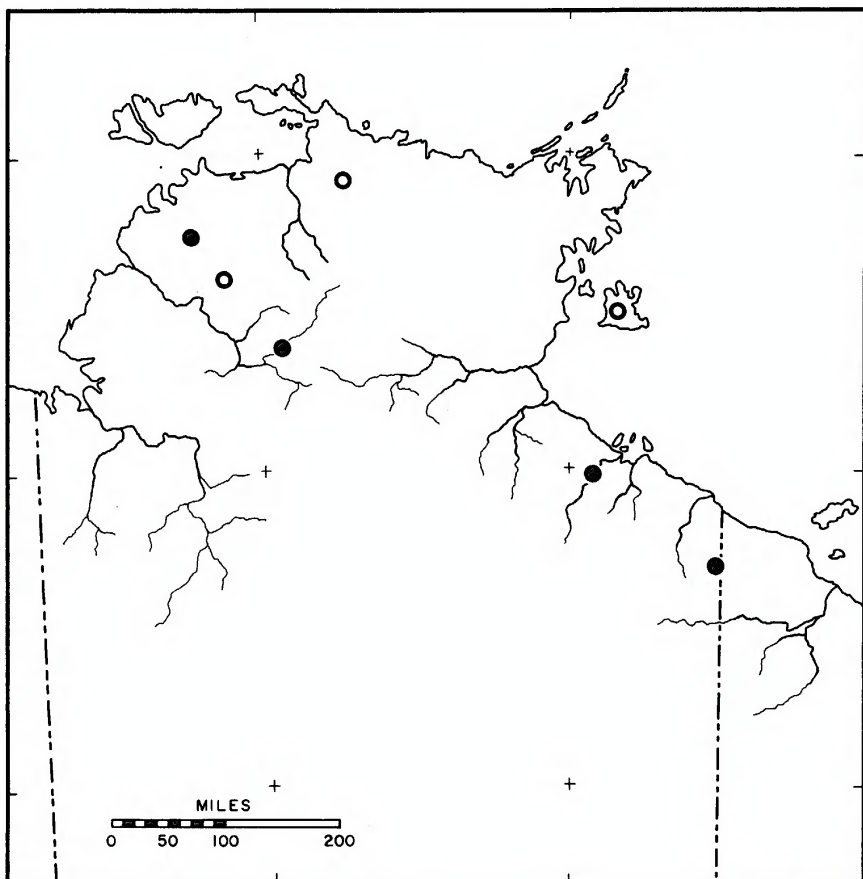


FIG. 5. The distribution of *Hyla spaldingi* in the northern part of Northern Territory. Solid spots represent localities from which specimens were examined; the northwesternmost is the type locality. Open circles denote published records that probably pertain to this species.

Oenpelli, Northern Territory, as *Hyla lesueuri*, but this too probably represents *Hyla spaldingi*.

DISTRIBUTION: *Hyla spaldingi* is known only from the northern part of Northern Territory (fig. 5). In addition to the localities cited for the type and paratype specimens, I have examined two specimens, National Museum of Victoria Nos. D.5082–5083, from Borroloola, Northern Territory. Records for Yam Creek and Groote Eylandt (Copland, 1957) and Oenpelli (Mitchell, 1955), all in Northern Territory, probably pertain to this species.

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